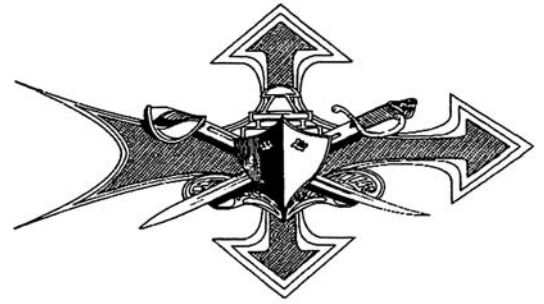


SHIPS' SAFETY BULLETIN

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Suggested routing should include CO, XO, department heads, division officers,
CMC, CPO mess, petty officers' lounge, work-center supervisors, and crew's mess.
Blanks provided for initials following review:

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Buckle up and "Make it Click"

By Mary Brigham
Naval Safety Center

Five hundred sixty-nine Sailors and Marines died in off-duty, private motor vehicle crashes during fiscal years 1998-2002. When looking at factors contributing to these deaths, we can understand when and why they happen. Most occur at night and on weekends, and--in private, four-wheel vehicles--we also discover people frequently do not wear safety belts. Using them could have prevented many of these 569 deaths.

Safety belts save lives and prevent injury only when they work correctly and are worn properly. For instance, a safety restraint system with an automatic shoulder belt will not be effective unless the lap belt also is buckled. During a crash when a restraining system is used improperly, devastating injuries such as decapitation, strangulation, paraplegia, and liver lacerations can result.

Also remember that, during impact, unbelted occupants continue to travel at the vehicle's original speed until just after the vehicle comes to a stop. Then, those not buckled in will slam into some part of the vehicle's interior, like the steering wheel or the windshield. Unbelted passengers also can collide with each other, and--in a crash--vehicle occupants tend to move toward

the point of impact, instead of away from it. This often results in unbelted rear-seat passengers striking people in the front seat.

When an unbelted person's body comes to a complete stop, the internal organs continue moving forward, suddenly hitting other organs or the skeletal system. An internal collision among body parts and organs can itself cause serious or fatal injuries.

Properly used safety belts reduce the risk of injury during a crash because they distribute the forces of rapid deceleration over the larger and stronger parts of your body like your chest, hips and shoulders. Belts slow down your body's motion and increase stopping distance.

Wear your safety belt whenever you get into a vehicle, no matter how long or short your trip will be. Most motor-vehicle mishaps occur within 25 miles from home. It is safer to wear a safety belt than to not wear one.

Buckle up and "Make it Click."

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This professional flyer is approved for official distribution to the surface force and to their appropriate staffs, schools and other organizations. The information is designed to advise Department of the Navy personnel of current and emerging safety concerns to enhance their professional development and improve operational readiness. This bulletin should not in itself be used as an authoritative document. However, it will cite the appropriate reference when available.

Did You Know?!

By HMCS(AW/FMF) Mark A. Sanders
Naval Safety Center

There are 10 different bacteriostatic additive solutions listed under NSN 6840-01-267-4346 on your Ship's Hazardous Material List (SHML); they ostensibly are for portable eyewash stations. You even can find them under various Material Safety Data Sheet (MSDS) codes.

What you probably didn't know is all of these additives are prohibited aboard ship. Let me reiterate: They are not to be used aboard any Navy ship, under any circumstances!

Understandably, this prohibition probably creates some confusion. You'll soon read why shipboard use is not permitted; but first, I have the following frequently asked questions and comments I get during safety surveys, about bacteriostatic additive solutions.

- How can we get the bacteriostatic solution for the eyewash station?
- We used the national stock number on the unit; so, why does supply kick it back?
- Is the water safe for use in your eyes without the additive solution?
- No one told us that we cannot use the solution--it came in the box with the unit.
- The safety office said, "The additive is under review," and that's the only answer they gave.
- We used the additive solution aboard *USS Last Ship*.
- The eyewash station is empty because we don't have the solution to mix with the water.

The bacteriostatic additive solution keeps fungus from growing in stagnate water. After adding the solution, water can remain unchanged for up to six months. However, the additive cannot be used because doing so would violate MIP series 6600, Q-3 periodicity requirements. The MRC specifies when to drain, flush, and refill the unit.

If not useable, why are the additives still in the box when you receive a new unit aboard ship? It's because Navy ships are not the only ones using the units. These eyewash units are used ashore, by

other Department of Defense agencies and by commercial companies not having the same prohibitions as afloat units. Meanwhile, the water is quite safe without the additives, because they have nothing to do with water purification.

As a final note: There are two other important reasons why the concentrated powder additive is prohibited aboard ship. The first is that when mixing the solution and then adding it to the eyewash station, Navy Occupation, Safety and Health (NavOSH) requirements require using local exhaust to vent where you mix and pour the solution. You must wear protective clothing--including an approved respirator for toxic dust--when mixing the solution. Second, the concentrated powder is an explosion hazard. Should the powder ignite, it will generate carbon monoxide, phenol, and possibly other toxic gases.

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Ladders: Take One Step at a Time

By GSCS(SW) John Davis
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There has been an increase in shipboard ladder mishaps resulting in Sailors needing lost workdays, light duty, and even unplanned personnel losses due to injuries. These mishaps primarily resulted from haste, poor situational awareness, and disregard for one's own safety.

The following are some examples of recent ladder mishaps.

- A Sailor was descending a ladder leading to radio central. Darken ship and modified material-condition zebra were set in the access trunk. The Sailor had misjudged the last ladder rung and bent his right foot over the rung's leading edge. The bend was at an awkward angle in relation to the rest of his body. The Sailor fractured a small bone in his foot and fell to the deck.
- Another Sailor was going down a ladder quickly when he lost his footing and

balance. He extended his left arm behind him to break his fall. On impact, he broke his elbow.

- Meanwhile, aboard another ship a crew-member was preparing to descend a ladder leading from 1st deck to 2nd deck. He placed one foot on the ladder's top rung, then began to place his other foot on the ladder. He lost his grip and fell the length of the ladder fracturing his left arm.
- Finally, a Sailor was climbing the vertical ladder leading from the hanger deck to the 02 level. He had a soda in one hand and a sandwich in the other hand. An alert shipmate saw him and warned him about the unsafe act of climbing a ladder while carrying objects in both hands and how it could lead to a fall. As his shipmate was warning him, the climbing Sailor lost his grip and fell almost two flights to the main, or hanger, deck and broke his leg.

Always move up or down an inclined ladder holding onto a rail with at least one hand but, if possible, have each hand holding onto a rail. Always hold on with both hands when climbing or descending vertical ladders.

Never slide down ladders.

Post warning signs where decks are slippery, and make sure non-skid strips are installed at the top and bottom of all inclined ladders.

Never dismantle or remove any ladders without the commanding officer's permission.

Make sure all obstructions in 72-inch, low overheads by inclined ladders, and in 75-inch passageways, are adequately padded and the padding is in good repair.

You can get the specifics on these safety measures in Chapter C0102 of OpNav Instruction 5100.19D, Navy Occupational Safety and Health Program Manual for Forces Afloat) under the topic of general safety.

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Know Your People and How Much is Too Much Fatigue

By BMCS(SW/AW) Danny Tidwell
Naval Safety Center

Whenever an officer or CPO is asked what their most important job is, the response is usually, "Take care of my Sailors". A car doesn't run well on fumes, nor do Sailors. We've heard this many times, along with "Not on my watch!" What are we talking about? We're talking about physically and emotionally fatigued Sailors.

These men and women constantly face the daily demands and rigors of shipboard life. Standing watches, unreps working parties, flight ops, well-deck ops, various shipboard drills—all these along with the daily routine! Work center supervisors and LPOs must watch for, and recognize, signs of fatigue among their Sailors. These signs include: irritability, apathy, withdrawal, and poor communication. A fatigued Sailor can also become forgetful, inattentive, prone to making errors, and become fixated on a certain task to the point where his or her reaction time is significantly reduced.

You can deal with fatigue in the following ways:

- Make sure people are well rested.
- Plan events and make only required changes after the event has begun.
 - Encourage breaks and if feasible napping--and minimize interruptions during these periods.
 - Watch for signs of fatigue, since Sailors are often not good at monitoring themselves.

Take fatigue seriously and remember, most Sailors are reluctant to admit they're beat. If someone says he is fatigued, believe him and secure him from the task, but be sure to get replacement help so as not to jeopardize others involved in the evolution.

Fatigue isn't always bad. If we don't work muscles, they will not develop. We have to manage fatigue in our people. Ensure they are physically and mentally fit to do a dangerous job.

Know when to quit before a mishap forces you or a shipmate to quit.

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Are your Gauges Reading the Correct Pressure?

By ETC(SW) Leon DuPlantier
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Recent surveys have identified significant gauge calibration misunderstanding. If calibrating gauges is your duty (gauge-cal representative or coordinator) you better take it seriously. Naval Safety Center surveyors have discovered numerous gauges marked, "No calibration required." NSTM 504, Pressure, Temperature and Other Mechanical and Electromechanical Measuring Instruments, tells us that if a gauge is attached to a piece of equipment having a PMS-mandated, specific operating pressure, all gauges on the equipment must be calibrated. For reference purposes, General Specifications for Overhaul of Surface Ships (GSO) 504 outlines gauge-installation requirements, while NSTM 504 outlines gauge-calibration requirements.

Not following the GSO or NSTM requirements can result in equipment failure or injury. For example, a quarterly PMS check under MIP 4402 requires the technician to verify operating pressure of an electronic transmission line; then, compare the readings to those on the MRC. If the gauges are not reading the correct pressure, the transmission lines could be over or under pressurized; this could lead to equipment radio-frequency (RF) damage. Serious mishap risks also are present with air, steam, and water cooling systems which rely on calibrated gauges for monitoring. Here is an example of one.

A fireman was conducting a sounding and security round and went to check on a space. The space contained an air flow gauge at its entry point with a placard explaining the reason for the gauge. The placard explained that due to possible build up of explosive fumes, the gauge must read air flow before anyone could enter the space. The gauge was OOC, so "everyone" assumed the space had continuous air from supply ventilation. The space also contained explosion-proof lighting that had not had proper PMS (MIP 3301/008 and DOD-HDBK-289) performed. This created a good scenario for a bad mishap. The light fixture heated above 400 degrees and nothing happened. The

space had no oxygen supply! Well, it had no oxygen supply until a Sailor entered the space. Once the watertight door was undogged, air entered the space and reacted with the light fixture creating a violent explosion. The explosion ripped the door off its hinges and onto the Sailor.

Before completing any PMS, remember always check the calibration sticker: If the check requires a specific pressure, the gauge must be calibrated to accurately read that pressure. If it does not require calibration, it should at least work properly.

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Your Ship's Bell Needs Maintenance Too

By BMCS(SW/AW) Danny Tidwell
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During a recent safety survey, a Sailor was replacing the ship's bell. The old one had fallen to the deck after its mounting bolt broke. The mounting bolt had cracked, probably from the bell's motion when the mount became loose. The material condition of the mount was poor and showed signs of neglect. It could have been the bolt was never tightened when the bell was mounted. Nonetheless, the bolt had been loose for quite a while. While ship's mess management specialists traditionally polish the ship's bell, in this case it had been a long time since anyone had examined the bell.

Regularly inspect your ship's bell and tighten any loose bolts. The bell is important because *International Regulations for Avoiding Collisions at Sea*, or COLREGS, require the use of the ship's bell during reduced-visibility. Thankfully, the falling bell injured no one. Don't neglect your ship's bell and let it become a hazard that can injure a shipmate.

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Make Sure Your Eyewash Station Is Up To Specs!

By HMCS (AW/FMF) Mark Sanders
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During safety surveys conducted aboard both east- and west-coast ships, we continuously found discrepancies with portable, gravity-fed emergency eyewash stations. The survey team saw five-gallon pressurized tanks; six-gallon, green plastic units and the Fendall Flash Flood 400 that has a one-gallon cartridge. None of these are authorized aboard Navy ships because they do not meet minimum American National Standards Institute (ANSI) or NavOSH water-flow standards.

All Navy shipboard, self-contained portable eyewash stations must provide at least 15 minutes of water flow. Ships having five- or six-gallon eyewash stations should replace them with approved stations available through the supply system. You can find eyewash-station specifications in OpNav Instruction 5100.19D.

A portable, self-contained eyewash station is an alternative to a plumbed station when a space has no potable water or if plumbed fresh water might contain hazardous chemicals or corrosives. OpNav Instruction 5100.19D mandates all eyewash stations to be easily accessible in unobstructed locations and in an area requiring fewer than 10 seconds to reach. An eyewash station should be within 100 feet of any eye hazard and should be clearly marked with a green sign having white lettering reading

EMERGENCY EYEWASH STATION

Signs are available through the supply system under NSN 9905-01-345-4521, or they can be made in a ship's machine workshop. Required minimum sign-size is seven inches by seven inches.

Portable eyewash stations can also be purchased from your local ServMart, although available vendors will limit your choices. There are some manufacturers--Bradley, Fendall and Emedco--from which ServMart can readily order newer, self-contained units. Check out their web sites at <http://www.bradleycorp.com/>, <http://204.168.19.70/>, and <http://www.medco.com/>. The units are compact,

hold eight gallons of water, and meet ANSI minimum-flow requirements by using modern technology. Since these manufacturers make various portable units, be sure what you purchase meets Navy PMS standards listed in the MIP 6600 series.

Eyewash stations are only a last resort: Sailors always should wear prescribed, chemical splash-proof or non-vented goggles when working with chemicals or when painting. Goggles should also be worn when scraping, chipping, or working near any potential eye hazards, whether equipment, chemical, or other, such as sandblasting.

If Sailors observe safety procedures and wear approved PPE while performing the task at hand, they should never have to come face-to-face with an emergency eyewash station.

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Who Is This "Somebody"?

By CWO4 Tony Evans
Naval Safety Center

Somebody told me that it's OK to install a "thingamajig" as a replacement for an item required by the tech manual. Is this proper?

We at the Naval Safety Center daily receive numerous phone calls and e-mails like this. When we ask, "Who is this somebody?" The reply usually remains, "Somebody." We then ask, "Did this somebody have a reference for the solution to the problem?" The reply? "I did not ask."

Before you take action on "somebody's" advice, ask under what authority or reference they are operating. If the authority gives guidance referencing established procedures, then it is important that all guidelines of that reference be followed. Correct procedures are essential to the operational readiness and safety of the ship's systems, equipment, and crew.

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Built in Safety or Hazard?

By ETC(SW) Leon DuPlantier
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A message concerning a solid state frequency converter operating in battle short mode (interlocks bypassed) prompted me to address operating electronic equipment in this mode.

The frequency converter's output transformer normally is interlocked so if damaged or removed, you can operate the system while in battle-short. Battle-short mode operation means interlocks are bypassed and operation can continue regardless of equipment condition. However, bypassing interlocks on any electronic gear poses a significant hazard that could result in injury or death, fire, and equipment damage. This is why only the commanding officer can order the operation of battle-short mode.

NSTM 400, Electronics, defines the purpose and correct operation of interlocks and battle short switches. The major difference is that interlocks are safety features and prevent equipment operation while panels are opened or during equipment overheating and overloading. Battle-short switches are installed to bypass equipment safeguards like interlocks, but only during emergency operations, and with the CO's permission. When battle-short conditions are authorized, equipment can operate despite overloading, overheating, or while access panels are removed. Using battle-short switches to bypass equipment safeguards is restricted to the most life-threatening need to continue operating.

Electrical shocks occur daily throughout the fleet. Sailors who operate or maintain electronic gear must read and understand the safety practices and operating procedures found in applicable technical publications. Train your technicians and operators to respect battle-short switches. There should never be a situation that endangers themselves or others by ignorance of, or disregard for, electronic equipment safety procedures.

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Inspect Your Crane Hook

By BMCS(SW/AW) Danny Tidwell
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This article brings attention to the requirement to inspect crane hooks. When faced with a challenge, we Sailors pride ourselves in our ability to adapt, improvise and overcome. In that light, we also have been known to acquire hooks from many spaces and places. Before putting the hook into service, we must ensure the hook meets all requirements stated in NSTM 589, Crane, and the maintenance requirement card (MRC). The bottom line, have you inspected your hooks?

Note: Each day before the beginning of any load-handling operations, a crane operator must conduct an equipment inspection, including wire rope and hooks to be used. The operator's daily checklist (ODCL) exists for this pre-evolution inspection. Specific inspection requirements are addressed in NSTM 589 which states, "The ODCL shall be completed every 24 hours while the crane is in continuous use."

Inspect hooks, including the hook throat openings on new hooks. Measure dimensions of hook throat openings and keep them in a record maintained by the crane officer. If no one recorded a pre-use dimension in the log, use the current hook throat opening. Initial hook-throat opening dimensions are used to assess hook degradation following static load tests. NSTM 589 is an excellent source to review information about this. Meanwhile, inspect hooks for:

- Damage
- Excessive wear to the hook safety latch, hook swivel trunnions, thrust collar, and securing nuts
- Damaged or missing lubrication fittings
- Proper lubrication
- Cracks and gouges parallel (lengthwise) to hook contour (remove by surface abrasion, if possible, or remove hook from service)
- Cracks and gouges transverse to the hook contour (examine nondestructively)
- Visibly bent or twisted hooks (remove from service).

See Section 5 of NSTM 589-5.1 for inspection and testing information.

Planned maintenance system (PMS) inspections and tests must follow the maintenance requirement cards. If applicable inspections and tests required by NSTM 589 are not in the PMS package, submit a PMS Technical Feedback Report (OpNav Form 4790/7B), according to OpNav Instruction 4790.4C, Ship Maintenance Material Management (3-M) Manual.

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Short Fused!

By EMC(SW/AW) Manuel Carretero
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We receive mishap and near mishap reports (MRs) about afloat mishaps. Many involve electrical shocks. The number of reported electrical shocks continues to increase.

Obviously, the safest way to remove and replace fuses is to deenergize the circuit. If you must change fuses while the circuit is energized, you must follow these procedures:

Note: The commanding officer's permission is required before working on energized electrical equipment.

- Open or unplug all user-equipment switches and portable cords, before opening the fuse box cover.
- Have a CPR-qualified safety observer standing by the individual changing the fuse. If the technician gets shocked, the observer must know how to deenergize the fuse panel immediately and call for medical help.
- Workers must not wear wet and loose clothing, wet shoes, and metal articles such as rings and necklaces. Metal articles also should be removed from pockets—this includes removing pens and pencils from shirt pockets.
- Insulate the work-area deck with electrical grade rubber matting available through the supply system. Cover enough deck so

workers have adequate space to move about.

- Use rubber gloves while working. If, for some reason, work does not permit wearing both gloves, wear a rubber glove on the one hand not used for handling tools.
- Always wear an approved face shield, safety glasses or goggles; during the work to protect the eyes and face from flying molten particles and intense heat a short circuit could produce.
- Cover metal on hand-held tools with electrical insulating material. See the instructions in NSTM 631, Preservation of Ships in Service.
- After removing all fuses and before replacing a blown fuse in a fuse box, check the load-side fuse clips with an ohmmeter to make sure the cable does not have a short.
- When removing a fuse to isolate user equipment for other maintenance, tie the prescribed red "Danger tag" to the fuse box cover, to clearly notify shipmates of maintenance being done on the equipment.

Understand that replacing a fuse in an energized box can cause a flash, arcing, or fuse explosion if a short is present, or if the load is not secured. Serious injury or fire can result from these.

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Q: Where could I find safety training videos and pictures to use for safety stand-downs?

A: Visit the web site for the Defense Visualization Information System (DAVIS//DITIS) at:
<http://dodimagery.afis.osd.mil/>

EOSS, EOP, and the Big Picture . . .

By CWO4 Tony Evans
Naval Safety Center

Not staying current with, and following, Engineering Operating Procedures (EOP) can result in costly repairs to major equipment, and can lead to serious injury or death to engineers.

Routinely, the Naval Safety Center is called upon to assist a mishap investigation board (MIB) looking into costly and often tragic casualties. Recently, repairs and overhaul to a major piece of equipment cost over a million dollars because personnel failed to follow established EOP. The investigation discovered that NavSea Tag-Out procedures as established in the Tag-Out Users Manual (TUM) were not followed properly. Proper tag out of the system was required by the EOP; however, violations of this procedure cascaded from supervisor to operator and led to the costly damage.

Commander, Naval Sea Systems Command developed the Engineering Operation Sequence System, or EOSS, to help engineering personnel familiarize themselves with their equipment and its operation. When gear functions normally, operators can confidently use EOP as an EOSS sub-system.

Engineering Operating Casualty Control, or EOCC--an EOSS sub-system--standardizes equipment-malfunction procedures. However, many mishap lessons learned reveal supervisors frequently fail to train new personnel how to use EOSS and its subsystems.

EOSS is a system of checks and balances even for "old salts." The system is aligned and checked with EOSS. Regardless of the operator's experience level. Although experienced technicians familiar with their gear may think they don't need EOSS, its use is not an option -- It's required!

Meanwhile, EOP doesn't need to be memorized or carried around all the time, but

should be referred to when needed and to make sure required engineering operating procedures are followed. System guidelines require operators to memorize all controlling and immediate actions relating to EOCC.

Watchstanders who discover an EOSS procedure that doesn't work, or has incorrect parameters, should contact their watch supervisor, and then pass their findings up the chain of command. An EOSS feedback report might have to be issued to change the procedure. If the problem is safety related, an urgent EOSS feedback report should be issued by message.

A ship's commanding officer can authorize an immediate pen-and-ink change to EOSS in two situations: If the problem is safety-related, or if a temporary procedure is needed because another piece of equipment is out of service and established procedures cannot be followed. In either case, a feedback-report-number and the CO's initials must be included beside the change.

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Q: "Where does it say that sickbay is required to have a fixed or portable eyewash station located in the space? We flush our patient's eyes with 0.9% normal saline."

A: Article B0508(f) of OPNAVINST 5100.19D, requires a fixed or portable eyewash station be located in the dark room, flammable materials issue room, medical, dental, chemical laboratories, and other areas where corrosive materials are present.